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THE
FERROTYPERS GUIDE:

A COMPLETE
MANUAL OF INSTRUCTION IN THE ART
OF FERROTYPING.

WRITTEN BY
AN ACTIVE FERROTYPERS.



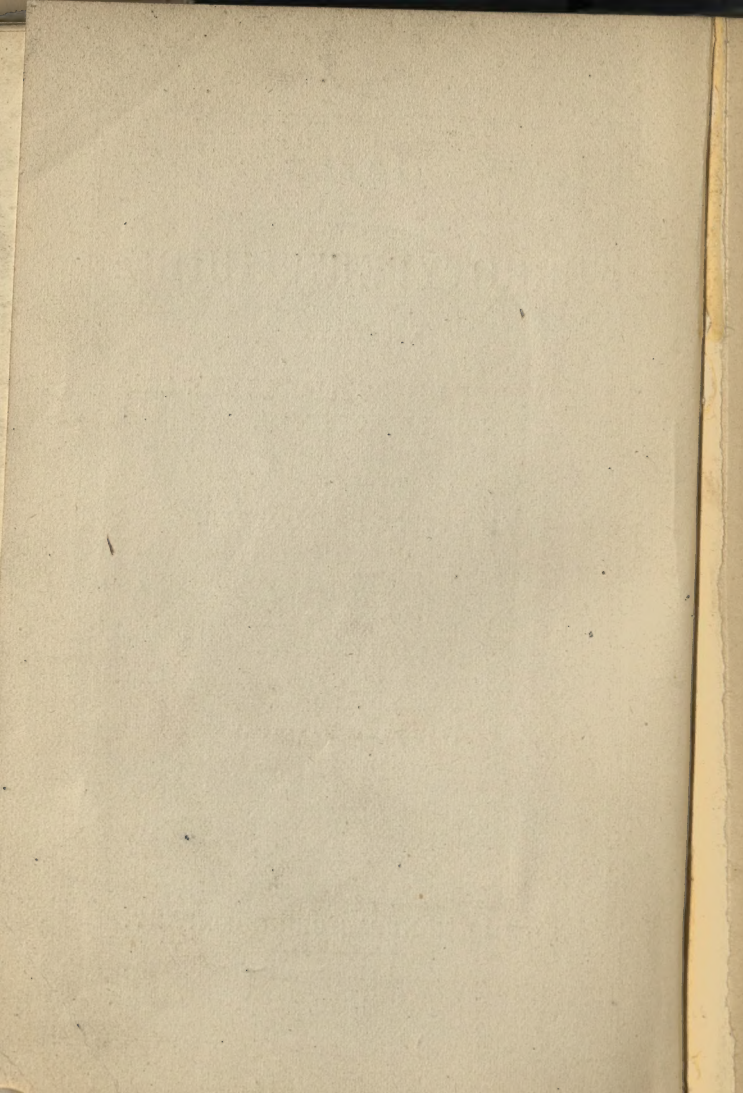
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NEW YORK:
PUBLISHED FOR THE AUTHOR BY
SCOVILL MANUFACTURING COMPANY.

Philadelphia: Benerman & Wilson.

1873.



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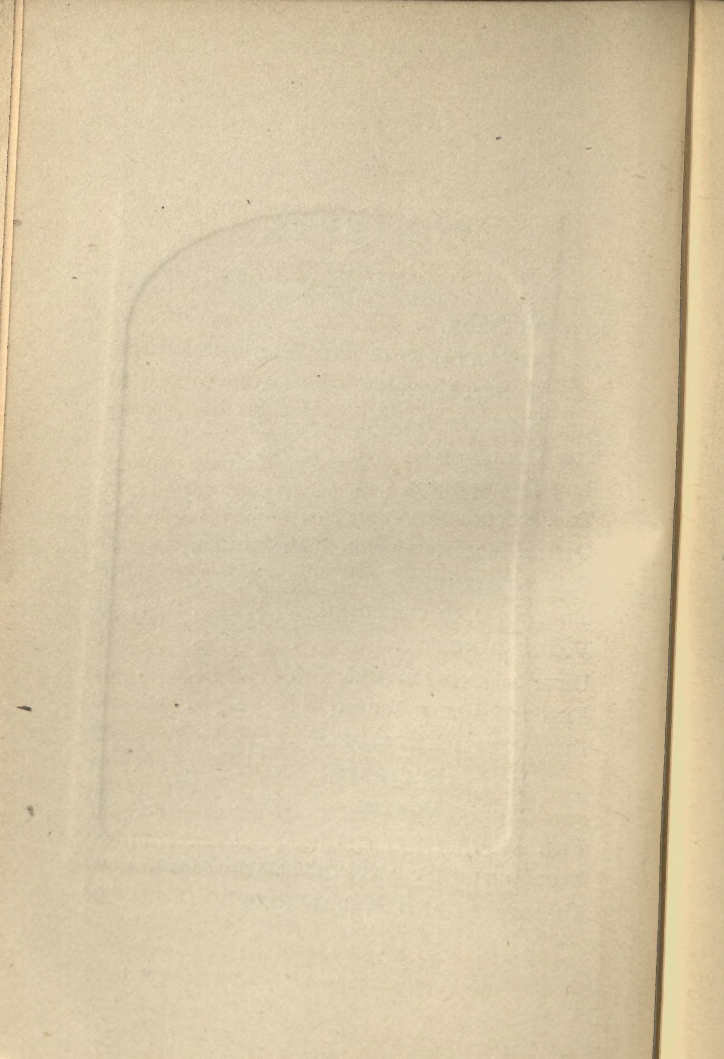
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By SCOVILL MANUFACTURING COMPANY,

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CONTENTS.

| | PAGE |
|--|------|
| INTRODUCTION, | 5 |
| THE ADVANTAGES OF THE FERROTYPE, | 7 |
| THE MANIPULATIONS, | 10 |
| THE NITRATE BATH, | 12 |
| THE COLLODION, | 15 |
| THE DEVELOPER, | 21 |
| THE FIXING SOLUTION, | 25 |
| OTHER MANIPULATIONS—PINHOLES, | 26 |
| STRENGTHENING, | 28 |
| TINTING AND COLORING, | 30 |
| VARNISHING, | 31 |
| DRYING AND DRYERS, | 34 |
| FINISHING THE WORK, | 36 |
| FERROTYPE ENVELOPES, | 37 |
| “ SUPPORTS, | 38 |
| “ PLATES, | 39 |
| THE APPARATUS, | 43 |
| THE SKYLIGHT AND THE DARK-ROOM, | 50 |
| VIGNETTES AND MEDALLIONS, | 53 |



INTRODUCTION.

THE purpose and intention of this work is to give plain and precise directions for the production of ferrotypes.

We presume that all of our readers are photographers, and for that reason we shall not go into tedious details. Yet the novice may find herein all he wants to give him ample information concerning the work in question, for we shall suffer no necessary point to go by unexplained.

The ferrotype, as is well known, is a collodion positive picture made upon a japanned iron plate. It has been very popular in the United States for a number of years, and has had a long and successful life, though it has been much retarded by a jealous feeling among photographers, who have tried to degrade it and to "kill" it. Just as the telegraph, the railway, the steamboat, and hundreds of other comparatively modern improvements were ridiculed in the beginning, so were ferrotypes hooted at and cried down by photographers. The main cause of this jealousy was the fact that ferrotypes could be produced very cheaply, and photographers feared they would

be ruined by the introduction of a cheaper picture. Meanwhile, the public seemed to want them; the manufacturers of and dealers in supplies saw "business" in them, and proceeded to perfect the apparatus and material needed; those who had taken up the process to practice it, made rapid improvements in the manipulations, and in due season the ferrotype marched alongside the photograph as a fierce compeer. Those who "first ridiculed, then opposed," finally "accepted" them, made them, and make them now, so that in the majority of the establishments you may have your choice of a photograph or a ferrotype.

More than this, there are some in America whose ferrotypes are real works of art, for the subject is lighted as skilfully and posed as artistically as can be in any photograph. Such men have done much to raise the ferrotype from the oblivion to which photographers generally would have consigned it.

Much is due, also, to the strenuous efforts of the Phenix Ferrotype Plate Company, of Worcester, Mass., who have labored so hard, and with such eminent success, to produce a quality of ferrotype plate that would meet all the requirements of the process. Again, much of the progress of the ferrotype is owing to the very perfect apparatus, such as "gem" and "multiplying" camera-boxes, than which none in any way approach the American Optical Company's (Sco-

vill's) in quality, neatness, compactness, or style. It is even more important to have these articles for ferrotype work as *perfect* as possible than in the negative process. There is nothing meaner than a mean ferrotype plate. You may make a negative with a shaky camera-box and a lens a little out of focus, but a multiplying box must work *exactly*, and the lenses must be adjusted perfectly alike in focus or the whole is worthless. There are none which are so nearly perfect as those made by the American Optical Company.

Bearing these facts in mind, we will proceed to discuss the merits, advantages, and claims of the ferrotype briefly, and then proceed at once with the practical details of their production.

CHAPTER I.

THE ADVANTAGES OF THE FERROTYPE.

A GREAT deal might be said in favor of the ferrotype, though we neither predict nor believe that it will ever supersede the photograph. We believe this, however, that thousands, yea, millions of ferrotypes can be made where no pictures at all would be made did not ferrotypes exist. For this reason they may be introduced by photographers in almost any quarter without fear of their damaging the other branches of the busi-

ness. A fair trial, we think, will convince any one of the truth of this.

They are easily produced; the material costs but little; the profits are large, and the results are very beautiful and pleasing to your patrons if you exercise the same care in their production that you do in the production of photographs.

Among other advantages in their favor are the following:

1. They can be made and finished so quickly that the customer can wait for them. Your work is then done, and you get your money. There are no prints to make and tone, and probably spoil.

2. You do all the work requiring judgment and care yourself. The simplest employee can finish them, if ordinarily neat and careful.

3. There are many times when a ferrotype will meet the requirements of the case when a photograph would not do at all; for example, where parties are paying a hasty visit who will not have a portrait taken at all unless they can take it with them; where persons called unexpectedly from home want to take pictures of their friends with them; where the work of having one's portrait made for a special occasion is put off until the last moment; where one desires to have the number of portraits taken limited, thus avoiding any clash between photographer and patron as to the ownership of the negative.

4. They generally soften and flatter strongly-

marked faces, and are great favorites with the public.

5. As they may be produced with such facility the best of people will often have them taken, when dressed in a special way; when celebrating an anniversary occasion; when desiring a picture to mark any particular event, &c.

6. The masses will have them made in quantity, because they may be had at a comparatively low price.

In all the cases mentioned, photographs would not be made, even if ferrotypes were not to be had, so that instead of the photographer's business receipts becoming depleted by the introduction of the ferrotype, on the contrary he would find them largely increased.

Again, if the ferrotype is introduced into new places its *novelty* will attract many customers, and make much additional business. The prices need not be made too low. Charge enough for them. Also, when groups are taken, add something for each additional figure.

Ferrotypes are very beautiful and very popular in America, and large establishments, handsomely fitted up, are there devoted entirely to the production of these very popular pictures. An idea of the quantity made, may be had from the fact that in one month, recently, the Scovill Manufacturing Company (New York) alone sold \$12,000 worth of the Phenix Ferrotype Plates. Add to this the quantities sold by the manufac-

turers to other dealers, and you have an irrepres-
sible argument in favor of the ferrotype.

CHAPTER II.

THE MANIPULATIONS.

THE manipulations are simple and easy. After the solutions and preparations are in readiness come :

- A. Collodionizing.
- B. Sensitizing.
- C. Exposure.
- D. Development.
- E. Fixing.
- F. Drying.
- G. Tinting.
- H. Mounting.
- I. Varnishing.
- J. Receiving the reward of merit.

The same care, the same cleanliness, the same skill, the same thought, and the same sort of brain-work are necessary as that required by photography. No man can hope to succeed in making good work without the exercise of all of these, and he is sure to succeed if he does exercise them.

There is nothing in the *work* of the ferrotyper that will degrade the photographer. Do not be afraid of that. All the good lessons you have

had in matters of photographic nicety, skill, æsthetics, &c., will come in play in the production of ferrotypes. It is quite easy to make a bad ferrotype, but just as easy to make a good one if you know how, and this we will proceed to teach you as explicitly as we can.

NOTES.

The careful, cleanly manipulator succeeds in producing the best results.

Use the best material you can obtain, and the best of apparatus. The material costs so little that there is no economy in trying to use that which is bad.

When difficulty in working your formula occurs, carefully examine everything, and you will, no doubt, discover the cause.

Your motto should be, *The best of work, and remunerative prices.*

Above all things else, use good plates. The Phenix Ferrotype Plate Company's are the best.

Select carefully your apparatus. The "Gem," "Victoria," and "Multiplying" boxes, made by the American Optical Company (Scovill's), are the most advantageous.

The ease with which ferrotypes are made should not debar you from further study. Read all that is written upon the subject, and constantly search after more knowledge.

As the developer upon the plate causes the molecules of silver to deposit and form the beau-

tiful image, so will reading and study leave a deposit of knowledge upon your mind, which will assist you greatly in the production of your work.

CHAPTER III.

THE NITRATE BATH.

THE greatest care should be exercised in the preparation of the nitrate bath. We need not remind the old photographer that the bath is the father of good and of evil, and yet as a child never cries unless something ails it, so the bath never refuses to do its work properly unless something ails it. That something is generally the result of some imprudence on the part of the operator, and a careful and patient search will generally set matters right.

The ferrotype bath is prepared as follows:

| | |
|------------------------------|------------|
| Water, | 1 ounce. |
| Nitrate of Silver, | 45 grains. |

Iodize with iodide of potassium. There are two ways of iodizing the bath. One is, to add the iodide (say four grains to a half gallon of solution) directly to the silver solution, and then after dissolving, filter. The following method, however, we think is better:

Dissolve the iodide, as near as possible, in a small portion, an ounce or so, of the silver solu-

tion; allow it to settle, and then pour off the solution; now wash the iodide with water, pouring off the water when the salts settle, and repeating the operation two or three times. Finally, add the iodide to the silver bath; shake well, and treat the whole to at least a whole day of sunshine. Before using it, add nitric acid sufficient to turn blue litmus paper slightly red, when, after standing a few hours, the solution is ready for use.

NOTES.

The bath should be kept as near neutral as possible. If it causes the least sign of muddiness or grayness of the film, add acid cautiously until the trouble disappears.

A bath decidedly acid, and one deficient in acid will cause harshness and slowness, besides a lack of brilliancy and roundness of the image—gray high-lights and dark shadows.

Keep an eighty-grain stock solution of silver on hand with which to strengthen the bath when it becomes weakened by work or overcharged with iodide. Set the bath in the sun a few hours after such additions, and filter before use.

It is unnecessary to filter your bath every night, though if it can be done in the dark it is recommended as being the best plan.

An over acid bath causes specks of comet shape to appear on the film. The only remedy is to mix some plain neutral solution with the other, enough to counteract the acidity.

The addition of ammonia would answer if care is had not to add too much.

Should the bath show indications of being over-acidified, in the hurry of work, a collodion salted with cadmium salts will give temporary relief.

Be careful that the plate-holders, shields, and dark-slides are carefully protected from the action of the silver solution. Shellac, asphaltum, paraffine and lard are all good protectors.

An extra bath should always be kept ready for an emergency.

Do not use your ferrotype bath for negatives.

It is not a good plan to add silver of one manufacture to a bath made up of that of another manufacture. The acid and the metal used by different manufacturers vary in their nature, and, of course, the resulting nitrate varies. Hence the silver made by one party would be very apt to cause some chemical disturbance if added to a solution made up from silver of another brand.

The ferrotype bath in its workings and disposition is very similar to the negative bath, and one accustomed to the management of the latter can readily manipulate the former. The novice, when in trouble with his bath, will find full instructions how to proceed in works on photography more pretentious than this, such as Dr. Vogel's *Handbook of Photography*; Elbert Anderson's *Skylight and Dark-room*, &c.

The Phenix Ferrotype Company's plates, and the American Optical Company's apparatus, are

made with a view to putting the best of their kind into the hands of operators, thus aiding them very materially in the production of the best of work.

CHAPTER IV.

THE COLLODION.

THERE are of course as many formulæ possible for the making of collodion as there are changes possible in the alphabet. The climate, temperature, and peculiar notions of the manipulator, regulate the matter altogether.

What follows are the best known and most used formulæ in America, and they are all good. If one does not prove good in *your* hands, then you have others from which to choose.

A.

Ether and Alcohol, Equal parts.

To each ounce of the above add:

| | | |
|--------------------------------------|-----------------|-----------|
| Iodide of Ammonium, | | 3 grains. |
| Iodide of Cadmium, | | 2 " |
| Bromide of Cadmium, | | 2½ " |
| Gun-cotton (Hance's Delicate Cream), | 4½ to 5 grains. | |

This will be found as good as anything can possibly be. Some may have a conceit that they succeed better with

B.

| | |
|---|--------------------|
| Ether and Alcohol, . . . | 20 ounces each. |
| Bromide of Potassium, . . . | 40 grains. |
| Bromide of Cadmium, . . . | 60 " |
| Iodide of Ammonium, . . . | 200 " |
| Gun-cotton (Hance's Delicate Cream), | 180 to 200 grains. |

The former will be found to keep the best in hot weather, owing to the greater quantity of cadmium salts used. Very excellent results are obtainable by mixing A and B together. Of course remember that cadmium salts are more decidedly alkaline than those of other salts, and if collodion B works a little slow or harsh on account of acidity, of course the addition of A will correct it more or less.

C.

Ether and Alcohol, Equal parts.

Gun-cotton, 5 grains to the ounce of the above, immersing the cotton in the ether before adding the alcohol.

To each pound of plain collodion add :

| | |
|-------------------------------|------------|
| Iodide of Ammonium, | 64 grains. |
| " Cadmium, | 32 " |
| Bromide " | 20 " |

Being a cadmium collodion this will keep well, and may be used as soon as it has settled sufficiently to decant.

D.

| | | |
|--------------------------|-------|-------------|
| Ether and Alcohol, each, | . . . | 8 ounces. |
| Gun-cotton (Hance's), | . . . | 112 grains. |
| Iodide of Ammonium, | . . . | 48 " |
| " Sodium, | . . . | 16 " |
| " Cadmium, | . . . | 32 " |
| Bromide " | . . . | 32 " |

This is a rather more difficult collodion to manipulate than the others, but in skilful hands obtains most delicate and beautiful results with any plate having a fine surface, such, for example, as the chocolate-tinted glossy plates of the Phenix Plate Company.

Some ferrotypers are accustomed to exciting their collodion with the double salts, made as follows :

| | | |
|----------------------|-------|--------------|
| Iodide of Cadmium, | . . . | 182 grammes. |
| Iodide of Potassium, | . . . | 165 " |
| Warm Water, | . . . | 300 " |

Shake well and filter; then evaporate in a small evaporating dish over slow heat. For ammonium and cadmium :

| | | |
|-----------------------|-------|--------------|
| Iodide of Cadmium, | . . . | 149 grammes. |
| Iodide of Ammonium, | . . . | 144 " |
| Water same as before. | | |

Double bromides can be made as well by using their equivalents.

The great advantage gained is in being able to

use the potassium without any water to dissolve it, as the double iodides dissolve very readily in alcohol and ether.

For collodion

E.

Use the following proportions :

| | |
|----------------------------------|-----------------|
| Double Iodide, | 5 to 6 grains. |
| Double Bromide, or Bromide of | |
| Cadmium, | 2½ grains. |
| Alcohol and Ether, | equal parts. |
| Cotton (Hance's Delicate Cream), | about 6 grains. |

For soft, delicate effects, when good plates are used, nothing is superior to this collodion, though as we have said, it requires a nice, careful, thoughtful manipulator to work it. Until he is more experienced, the novice had best adhere to A or C.

Too much care cannot be observed in making collodion, and pure chemicals are necessary. The bromides and iodides should be ground very finely in a glass mortar, and mixed together ; then add a little alcohol ; stir them well together ; let the mixture settle, and pour off into a clean bottle, and repeat until it takes up all it will ; then add the ether, a little at a time, until the required amount is used, shaking well each time you add it ; then filter the whole into a clean bottle.

Some ferrotypers say they do not add the cotton to the collodion until they want it to use, and in this way it keeps better, and does not

work slower by being old. Some brands of cotton thicken more than others. A little judgment and experience will regulate that.

NOTES.

It will be found advantageous to vary the proportions of the ingredients used according to the season of the year. For example, less ether should be used in warm weather and more alcohol than when it is cold, and *vice versâ*.

Less bromide should be used in hot weather than in cold.

If the collodion appears glutinous, too much alcohol has been used. Remedy,—add more ether, carefully.

As a general rule ether and alcohol in equal parts is a safe guide.

If the collodion is very tender or dries too slowly, use more ether, or if it dries too fast, more alcohol is required.

As the chemicals are not always alike, it is simply impossible to give any rule for mixing collodion that will always work correctly, and you can always have a chance to exercise your judgment.

We generally use a weaker collodion in summer than in the winter. Much trouble may be saved by keeping your collodion bottle in water during hot weather. It is not necessary to have ice-water, but change the water often, and keep it up to the top of your bottle. Collodion is a very

sensitive solution and needs careful watching. It is in this that you may look for the cause of many of your failures.

If your pictures have harsh blacks and whites, it indicates a lack of bromide; and to remedy this we would make some collodion with 3 grains of bromide, and no iodide. Take 1 ounce of it for 8 ounces of your old collodion; shake well together; let it settle, or filter, and it is ready for use again.

But when there is too much bromide the drapey will be flat and light, no shadows, and the whites will be muddy. Then more iodide should be added. For this purpose make some collodion with 5 grains of iodide, but no bromide, and add to your old collodion enough to make your pictures clear and brilliant.

Be careful to select the best sample of gun-cotton. Hance's "Delicate Cream" is peculiarly adapted for ferrotype work.

The light has more influence upon the action of collodion in ferrotyping than it seems to have in the negative process. A weak light requires more bromide than a larger one. So the collodion that would work well under one light might not work at all well under some other, even though all the chemicals were the same.

Sometimes the nature of the collodion will be entirely changed just by using a different gun-cotton, and only the same amount.

Some recommend washing the cotton with

liquor ammonia and water, then rinsing the ammonia out with distilled water; wring out dry in a cloth and spread out to dry. Others use distilled water to rinse the cotton.

We use the cotton without washing at all, and find it works just as well.

Careful decanting of the collodion is fully as good as filtering it.

Collodion often slips from the plate because the plates are dirty. The cleanest plates are made by the Phenix Plate Company. Ask your dealer for them.

A great many failures and stains are caused by badly made apparatus.

CHAPTER V.

THE DEVELOPER.

As all photographers know, we now come to that most delicate operation, the development of the latent image. It lies dormant within the creamy film on the plate which we hold in our hand, and it is for the manipulator to decide what shall be the character of the developed image; for although the formula for making the developer is the simplest and easiest of all, it is the most obstreperous and difficult to handle, because there are as many modifications necessary

as there are in the blows of the artisan in moulding his delicate instruments into shape. Mind, not muscle, directs his blows, and so must mind control and direct the development of the photographic image. We must not fail to remember when making the developing solution for ferrotypes, that the effects we are to produce are very different from what we look for in the production of the negative; consequently there must be considerable variation in the developer. The shadows in a skilfully, properly made ferrotype, should be clear and transparent, the lights pure and spotless, and withal the whole should possess as much detail as the negative is expected to. The securing of these good qualities is mainly dependent upon the developer and the development.

The stock ferrotype developer is made as follows :

| | |
|----------------------------------|------------|
| Water, | 32 ounces. |
| Protosulphate of Iron, | 2 " |
| Acetic Acid, | 2 " |
| Alcohol, | 2 " |

The latter may be dispensed with if the developer flows smoothly without. The iron is best dissolved by placing a bit of soft, coarse sponge in a funnel; on this put the iron crystals and pour in the water. Thus the iron dissolves, and the solution filters at the same time. The proportions given will be found to suit almost

any collodion, variations only being necessary generally in cases of under or over exposure.

NOTES.

Develop over a large funnel with a cotton filter therein. Catch the used developer in a bottle, and use it again.

If the plate is overexposed weaken the developing solution with that which has been saved as above. If too short an exposure has been made, strengthen the developer.

As you go along carefully note the changes which occur, and soon you will acquire the ability to make perfect pictures every time, no matter what changes occur.

Learn to apply, withdraw, accelerate, check, or aid, wherever necessity arises, and to do it judiciously and quickly. *Study*, watch; be on the alert always.

When the pictures flash out and are harsh and flat the developer is too strong, and in developing several on one plate you cannot develop them evenly alike.

When developing a number of images on one plate—no unusual thing, for some of the American Optical Company's multiplying boxes enable you to make 144 on a plate—you can retard the further development of those which come out first by letting water flow upon them, while the development of the rest is finished.

A weak developer is best, for it is most easily

managed, and produces a softer picture. As soon as you observe the three grades of color,—shades, middle-tints, and lights, arrest the action of the developer.

By improperly flowing the developer the picture may be easily ruined. If allowed to strike the film with force, it will wash the silver from the portion it strikes first, and a dark, stained appearance is sure to follow.

If the developer is flowed over the plate evenly, the surface will come up smooth and brilliant; if allowed to stop, it will mark your plate with a line.

As a general rule, the least amount of developer used to flow a plate produces the best results. In some conditions of the collodion the best results are obtained by flowing the plate, then by a sudden motion throwing off the greater portion of the developer; this produces a finer deposit and better effect; but, as a rule, we prefer to use no more than is necessary to flow the plate, and retain it until the picture is fully developed.

It is very important to know when the picture is fully developed. It requires a keen and well-trained eye to decide this every time; here lies the secret of success. If the picture is properly developed it has a brilliant, round, and vigorous appearance; but if not sufficiently developed, it is dull and smoky; if allowed to go too far, it becomes weak and flat.

A clean, smooth surface plate conduces greatly

to successful development. Such are the varied brands, eggshell and glossy, black and chocolate-tinted, made by the Phenix Plate Company.

Many stains and streaks are attributed to the developer, while the real cause is badly made camera-boxes.

CHAPTER VI.

THE FIXING SOLUTION.

HYPOSULPHITE OF SODA is found to be entirely unfit for the fixing of ferrotypes, and our only resource is cyanide of potassium. As we all know, it is a deadly poison, and extreme care is necessary in its use.

It gives the picture a clearness and that desirable degree of brilliancy which we cannot get with soda. It should be used so as to get as little of the fumes in the dark-room as possible. The following we believe to be the best plan to use it. Provide a 11 x 14 glass bath. Fill this with a solution of cyanide, and, with a dipper to lay the plate on, immerse the plate in the cyanide bath, the same as you would in the silver bath. After it has remained a sufficient time to fix, draw it out, and if not entirely fixed, return it to the bath until it is quite fixed; then draw it out, take it by one corner, and lay it on the washer to wash. You thus protect your hands from the

cyanide, and the fumes will not pass off so rapidly as when a flat dish is used. This bath can set in your wash-tank, and as far from you as possible.

By a washer we mean a block of wood, say six or eight inches square (standing under the tap), over which several thicknesses of clean muslin are fastened, forming a soft cushion on the top of the block.

NOTE.

Be careful not to make your solution of cyanide too strong. If too strong it will attack the film and destroy it.

Some ferrotypers who study economy almost too closely are often in a fix because they use "cheap and nasty" plates. The Phenix ferrotype plates "clear up" all such troubles.

Sometimes, owing to the bad construction of the camera-box the plate becomes so fixed in the dark-slide that it cannot be gotten out after exposure without destroying it. This never occurs with the American Optical Company's camera-boxes.

CHAPTER VII.

OTHER MANIPULATIONS.

Pinholes.—In former years one of the great trials of the ferrotypy was the readiness with

which small particles of matter floating in the bath solution would adhere to the film while the plate was being sensitized. Little particles that would allow a negative to pass in and out of the bath unharmed would seem to have a peculiar affection for or spite against ferrotype plates, and like barnacles attach themselves to the film, and thus cause that bane of photography, pinholes. Lately, however, ferrotypers have practiced dipping their plates film side in, or, in other words, towards the operator. This is accomplished in two ways:

A.

Reverse the dipper and put the plate under the dipper, collodion side down. Of course the dipper will be on the back of the plate, and the plate will sit in the prongs of the dipper the same as usual, only the whole thing is reversed when put into the bath. Now, holding the plate with thumb and finger, you carry it down steadily until the plate is below the top of your bath-dish, and then let go of it. The plate will fall against the bath-dish and the dirt will fall on the back, as the film is underneath. There is no danger of scratching the plate after you once get the hang of handling it, and you are always sure of having a perfectly clean plate when it is dipped in this way.

When you draw the plate out, put the forefinger of your left hand on the bath near the

dipper, draw up the dipper with the right hand; when the plate touches your finger, press it back from the bath-dish and take it out with the thumb and forefinger; drain well, then put it in the shield.

B.

Take a rubber dipper, heat it over a gas flame or a spirit-lamp until it is softened, then spring it at the prongs, and far enough up the dipper to cause your plate to rest against the dipper at both edges and not touch anywhere else. Now you can dip your plate by turning the collodion film towards the dipper. This last is the best way, as there is no danger of abrading the film.

Strengthening.—Very often a plate is properly exposed, and afterwards overdeveloped, thus causing it to be flat and weak. Such pictures can be saved by strengthening them with cyanide and iodine.

Make a solution of cyanide about the usual strength for fixing pictures and add a few drops of iodine. This will cause the solution to work quicker and reduce the silver on the picture. The shadows will come up, and a much better effect is secured than when it is strengthened up with strong cyanide alone. If too much iodine is used it will work too rapidly and will spoil the picture by cutting it out faster in one portion than in the other. But if used of the proper

strength, you can manipulate it just as you please. Many times in grouping, one face is too light, while the others are just right. Drop a drop of this solution on any portion of the face, and thus bring that portion up the fastest. For example, you make a child's picture, standing, with a black velvet suit. The drapery is just right, but the face is overdone. Drop a drop at a time of this solution on the lightest portion of the face. When it spreads to such portions as are dark enough, wash the picture, then try the same thing over again. In this way a beautiful picture is obtainable.

A weak solution is preferable. Its effect is slow, and you can watch the action and prevent its going too far in some portions by letting water on those parts and waiting for the other parts to come up. In allowing water to flow on some portions, you will mark your plate if you are not very careful. It is best to rinse the plate well, and then drop a few drops of the solution on the part that is too light. This will spread gradually, and will not make a decided line. In large pictures it can be handled very nicely. You can bring up any portion of the face or drapery by just dropping the solution on the lightest portions, and when it spreads too far, wash it off as directed. With care you may save many pictures that otherwise would be worthless. Many times we make sittings when the sitter cannot spend time to sit again, and if the pictures hap-

pen to get developed too far, they can be saved by strengthening them as directed above.

Faults and Failures.—Very much the same annoyances that beset the negative maker, such as fog, streaks, stains, markings, crapy lines, &c., also pester the ferrotyper, and as full instructions for meeting such drawbacks are familiar to all manipulators, we will proceed with the next topic.

CHAPTER VIII.

TINTING AND COLORING.

AFTER the plate has been developed, washed thoroughly, and dried either spontaneously or by heat, the cheeks may be delicately tinted, and parts of the drapery colored, if the parties so desire. This should be done, of course, before varnishing. Scovill's dry colors are usually used for this purpose. For the cheeks and lips a mixture of carmine and flesh color is used.

Several very fine soft brushes are required for coloring; a large one to brush off any light substance that may fall upon the plate, a medium sized one to apply the color, and one to blend the color.

A very fine brush for applying the color is more apt to scratch the coating than a larger one.

When coloring the cheeks, put the color nearly upon the cheekbone, then with the blending brush begin in the centre and blend it out to a faint tint, so faint that you cannot tell where the color stops, then it will look natural.

Be careful and not overcolor a picture, otherwise the beauty of a very fine picture is entirely destroyed.

If one side of the face is dark, do not color that side at all.

Do not color your pictures when they are hot. It will spoil your brushes.

If you wish to remove color from any portion of the face, touch the brush first to your own flesh. The moisture taken from your skin will cause the paint to adhere to the brush, and you can easily remove any portion without scratching the film. A brush should be kept for this purpose.

In coloring the lips, place the color first where the deepest tint is needed. The manner of coloring the drapery will suggest itself to any tasteful ferrotyper.

CHAPTER IX.

VARNISHING.

THE next step is to varnish the picture carefully and nicely. Many prefer to make their

own varnish, although the dealers supply a good article. The following is an excellent method :

Take one pound of white shellac, very old, if you can get it—the older the better ; break it up fine enough to drop into a bottle, add one gallon of ninety-five per cent. alcohol, shake occasionally ; if the gum has age enough to have a honey-comb appearance when broken up, it will dissolve without any trouble, and will settle off clear. If you cannot get old gum, take new, put it into a tin can, add the alcohol, shake often until the gum softens ; then put the can into a kettle of warm water, keep it at a temperature a little below the boiling-point, take it out and shake it occasionally ; then set it back, and in a little while it will all dissolve and settle off perfectly clear. When clear, filter, and add about two ounces liquor ammonia and two ounces oil of lavender. The ammonia evaporates so freely it will be necessary to drop a few drops from time to time into the bottle you are using from.

It is an excellent plan to have two bottles for the varnish. One for pouring it on the plate ; the other to keep a small funnel standing in, with filtering-paper, and drain the varnish from the plate into the filter. This filters through into the bottle ; if allowed to drain back into the bottle poured from, you flow your plate with the dust that naturally collects on your plate before it gets dry, and the color you use to tint your cheeks will soon fill your varnish full of

dirt. In the other way it is kept constantly clean.

When your varnish becomes thick, add alcohol sufficient to make it the proper consistency.

Many ferrotypers pour their varnish direct from the bottle, and after flowing the plate pour the residue back into the bottle. This is good enough so far as coating is concerned, but it is bad to pour back into the bottle, for much dust and dirt are thus carried back into the stock. To avoid this the following ingenious little dodge is practiced :

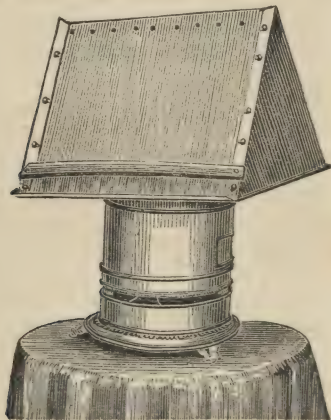
A is a toy teapot, C is a small tin funnel, made to fit neatly in the top of the teapot, B is a strip of tin, covering about half of the top of the funnel. In using, pour from the spout, and drain



the plate into the funnel in which some cotton has been placed.

After varnishing the plate, the drying follows. Of course, a metallic plate held in the heat soon becomes too hot to be held in the fingers, so a dryer must be provided. The form shown in the

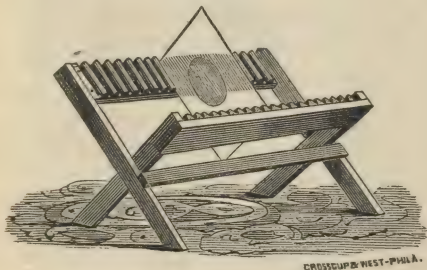
cut below is generally used, and may be made to fit over a gas, coal, or oil stove or burner. In America the little coal-oil stove is usually used. The dryer proper is made of sheet iron, of the form shown in the drawing. The black dots along the margin of the top are holes for the purpose of creating a draft, thereby preventing smoking of the lamps. The cost of making it is



very slight. The line along the lower margin of the top is a strip to rest the plates upon while drying. By noticing the end view you will see the form of the strips. The bottom of the dryer is 12 by 14 inches, and the height is 14 inches. Strips to be about $1\frac{1}{2}$ or 2 inches from the bottom.

Where a large business is done, of course more than one of these will be needed.

For the spontaneous drying of the plates after washing, and for resting them upon after varnishing previous to mounting, the Scovill Manufacturing Company, New York, make a very convenient little rack, shown by the drawing below. Every ferrotyper ought to have them standing



about wherever he has to handle plates. Thousands of pictures will be saved if these racks are used, for a plate is much safer resting in one of them than anywhere else. They are about a foot long, strong and durable, and made to fold up, so as to be laid away and kept clean when not in use. They are exceedingly convenient.

CHAPTER X.

FINISHING THE WORK.

Now, having the work all carefully and neatly made and varnished, how shall it be finished so as to make it most presentable to the customer, please him best, and bring the operator the most money? A great variety of "trimmings," so to speak, are made for the ferrotype. First, we have the well-known brass mat and preserver; next, the ferrotype mount so called—a card with an opening in the centre (with embossing around the opening) to which the ferrotype plate is fastened by "sticking paper;" then the ferrotype slip, which is a mount described as above, pasted at three edges to a piece of tinted paper which folds over: the ferrotypes are slipped into these, envelope fashion; next, and most used, come what are called the Philadelphia Carte Envelope, which are made with gilt and embossed openings of various shapes, with a side or top flap to cover the picture, as shown in the drawing on p. 37.

All of these are manufactured and sold largely by the Scovill Manufacturing Company, who are also manufacturers of the celebrated "Union Goods," such as cases, trays, and frames of most beautiful and elaborate patterns in great variety, all of which are adapted to the ferrotype, large and small.

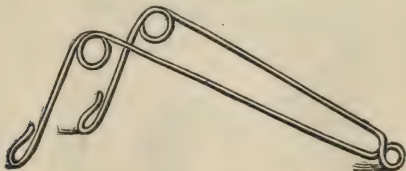
The larger sizes of ferrotypes are put in mats and framed in various ways, according to the taste and the stock of the enterprising dealer.



In America a great many are finished in a mat and stood upon the mantel or centre table by means of Scovill's Card Supports.

The cuts on p. 38 represent this useful contrivance. Ferrotypers desiring to stand ferrotypes in their show cases and windows temporarily, not wishing to frame them, will also find this support desirable; and it is a wonder so simple a thing should not have been introduced long before. It is made of stout brass wire—fire-gilt, so as not to tarnish—bent as shown

below, and its use will also be understood by the cuts. It is a *capital* little article, and supplied by all dealers at a very low rate, so that you can use them profusely at very little cost, or sell them.

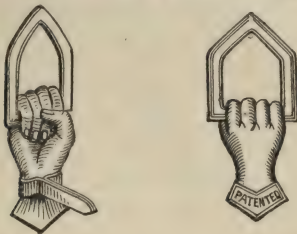


Some photographers present one with every lot of cartes they make, and find the customers



buy six times as many more. Its uses are made apparent by the cut. Will serve for cards, cabinets, and even whole size.

For business purposes, many ferrotypes of machinery, merchandise, &c., are made. Not desiring to go to the expense of frames, McGill's Suspending Hand-ring becomes useful.



You will understand their use as soon as you observe the cut.

After finishing your pictures neatly in some of these various ways, the next operation is to obtain a good, remunerative price for them.

CHAPTER XI.

FERROTYPE PLATES.

THE great essential in the production of first-class ferrotypes is a first-class ferootype plate. Many have tried to produce such an article, but after a few spasmodic successes have been compelled to give way to failure. Towering above all such, resting upon their ashes, rises the Phenix Plate Company, for which the Scovill Manu-

facturing Company are agents. This Company now manufactures nearly all the ferrotype plates in the market.

Mr. A. K. P. Trask, author of the *Practical Ferrotyper*, says of the Phenix plates, after dilating considerably on the trials he has had with other plates, also embellishing his work with a large picture on Phenix plates: "The pictures were made on the eggshell chocolate-tinted plates manufactured by the Phenix Plate Company, and I must compliment them on their success in manufacturing the best eggshell, chocolate-tinted plates I have ever used. They have overcome all the objections I have heretofore found. There are no signs of the black comet. The plates are perfectly clean, the surface is hard, and the collodion flows smoothly, without spilling. They also give the picture that rich, warm tone which cannot be had with the black plate. I cannot help congratulating the ferrotype world on the successful manufacture of this valuable plate, as it will create a new era in the ferrotype business, and the Phenix Ferrotype Plate Company are entitled to great credit. I have not spoiled one picture in a whole day's work on account of imperfections in the plates. This is a great saving of time and material."

Mr. E. M. Estabrooke, of New York, another eminent ferrotyper, and author of an elaborate work on the ferrotype, called *The Ferrotype, and How to Make It*, also compliments these plates

by making the beautiful picture in his book on them, and writes the following letter :

ESTABROOKE'S GALLERY,
No. 31 Union Square, N. Y.,
November 15th, 1872.

SCOVILL MANUFACTURING COMPANY.

GENTS: In answer to your inquiry as to the quality of the Phenix Plate Company's Ferrotypes Plates, I have to say that in my book, *The Ferrotypes and How to Make It*, I have, in discussing the qualities of the different manufacturers, given the plates of which you are the selling agents the preference, with my reasons therefor. In view of the fact that the book will soon be published, and it is expected will quickly be in the hands of every ferrotypist in the country, it is unnecessary, in my opinion, that I should repeat the language there used; but, instead, you will find inclosed an expression of the opinion of my operators, through whose hands all plates pass, as to the quality of the Phenix Plates, merely adding, in proof of the intelligence of the opinion, that we are perfectly familiar with all qualities and manufacturers of ferrotypes plates.

Yours very respectfully,
E. M. ESTABROOKE.

Messrs. Bacon and Heighway, Mr. Estabrooke's assistants, also write as follows:

ESTABROOKE'S GALLERY,
No. 31 Union Square, N. Y.,
November 15th, 1872.

SCOVILL MANUFACTURING COMPANY.

GENTLEMEN: The two thousand non-reversed fer-

rotypes made in this gallery on the Phenix Company's Chocolate-Tinted, Eggshell Plates, for Mr. Estabrooke's book on Ferrotypes, were made in three weeks, at the rate of over one hundred a day, in addition to our regular business; and we desire to testify to the excellent quality of the plates by stating as a fact that, of the five hundred plates coated and exposed, not one plate was lost from defective surface.

On examination of the pictures it will be seen, from the brilliancy of their tone, how little the collodion affected the varnished surface, which received the collodion freely, showing that the hardening of the surface had been carried to the point of perfection, thus insuring hardness with sufficient elasticity to prevent cracking.

We are, gentlemen, very truly yours,

FRANK BACON,
Principal Operator.

W. HEIGHWAY,
Assistant Operator.

With such recommendations we hardly think the reader will go astray in the purchase of plates. In the article of plates, most assuredly, "the best are the cheapest." The Phenix Plate Company manufacture two grades of plates; one called "glossy," and the other "eggshell." The former is a heavier plate than the other, is extra varnished and baked, and has a very smooth surface. The "eggshell" plates are thinner, and not so smooth a surface as the other, yet many

prefer them. The two kinds are obtainable, and all parties may try them and choose. The following sizes are made of both grades: $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{4}$, $4\frac{1}{4} \times 6\frac{1}{2}$, $\frac{1}{2}$, $4\frac{1}{2} \times 10$, $\frac{3}{4}$, 5×7 , 7×10 , 8×10 , 10×14 . These are all supplied in strong, neatly labelled paper boxes (except the 10×14 size, which are in wooden boxes), and none are genuine without the trade-mark of the Phenix Plate Company on the box.

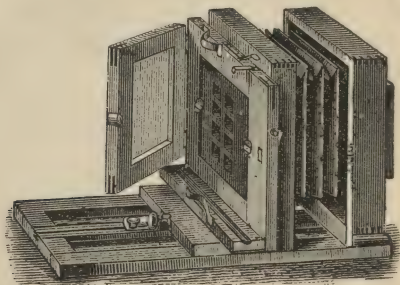
CHAPTER XII.

THE APPARATUS.

OF course ferrotypes may be made with the ordinary camera-box and lens singly, but where a business of any extent is carried on a "multiplying" or "gem" camera is indispensable, for by their use from four to one hundred pictures may be made in almost the same time required for a single exposure. At the American Optical Company's Works, New York, the largest number of these cameras used are made, because they make the most exact and carefully planned boxes in the world. Several varieties are made especially for ferrotype work.

The cut on p. 44 represents their 4-tube Gem Box, which is as complete and useful a piece of apparatus as can be condensed in the amount of space it occupies. It is perfect in all its parts,

accurate, and guaranteed to work satisfactorily *the first time a plate is exposed in it.* It has all



the little contrivances applied to it necessary to make it perfect.

The following variety is made :

No. 8.—Gem Box for twelve pictures on a $\frac{1}{4}$ plate using twelve tubes ; $\frac{1}{8}$ to $\frac{1}{2}$ sizes reversible, using one tube ; and two cards on a $\frac{1}{2}$ plate using two tubes.

No. 9.—The same box fitted with twelve tubes.

No. 10.—The same box fitted with four additional tubes for making four pictures on a $\frac{1}{4}$ plate.

No. 11.—For 4, 8, 12, and 16, on a $\frac{1}{4}$ plate ; $\frac{1}{8}$ to $\frac{1}{2}$ reversible, and two cards on a $\frac{1}{2}$ plate.

No. 12.—The above fitted with four Darlot Tubes (see cut above).

No. 13.—Card Camera-Box for two cards on a $\frac{1}{2}$ plate using one tube, and $\frac{1}{8}$ to $\frac{1}{2}$ pictures reversible. (The "Chicago Box.")

No. 14.— $\frac{1}{4}$ Card Camera-Box, covered front, for

four cards, using four tubes, with side doors for adjusting the focus.

No. 15.— 9×11 Card Camera-Box, covered front, for eight cards, using four tubes, with side doors for adjusting the focus; sideway movement.

No. 16.— $\frac{4}{4}$ Card Camera-Box for four cards using two tubes; upright movement.

No. 17.— $\frac{4}{4}$ Universal Camera-Box for four cards using two tubes, and $\frac{1}{6}$ to $\frac{4}{4}$ pictures, reversible, using one tube; sideway movement.

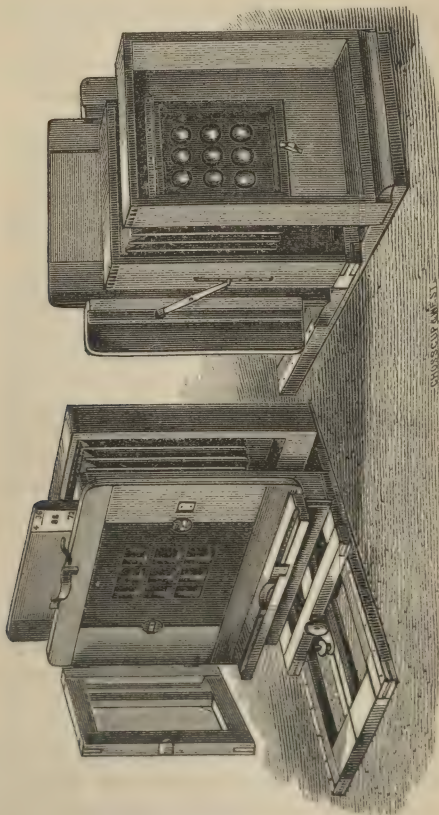
No. 18.— $\frac{4}{4}$ Universal Camera-Box for four cards using two tubes, and $\frac{1}{6}$ to $\frac{4}{4}$ pictures, reversible, using one tube; sideway carriage movement.

No. 19.— 8×10 Universal Camera-Box for four cards, on a $\frac{4}{4}$ plate using two tubes, and $\frac{1}{6}$ to $\frac{8}{10}$ pictures, reversible, using one tube; upright movement.

No. 20.— 8×10 Universal Camera-Box for four cards, on a $\frac{4}{4}$ plate using two tubes, and $\frac{1}{6}$ to $\frac{8}{10}$ pictures, reversible, using one tube; sideway movement.

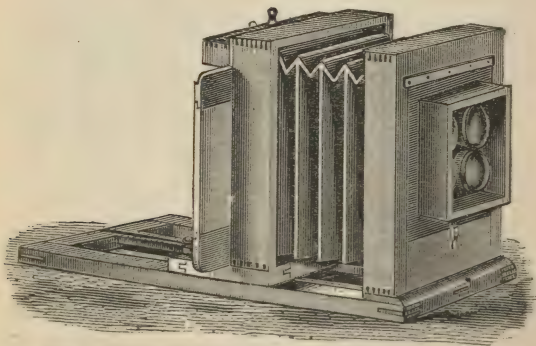
Card Camera-Boxes fitted with the double card attachment, for making two different pictures in different positions of the same subject on the same card, charged additional.

The gem of all Gem Boxes, however, is the American Optical Company's 8×10 combination multiplying box, which is represented by the double figure on p. 46. One view shows the rear, and the other the front of the box. Its regulation and movements hardly need to be described if the drawings are carefully examined. It is supplied with nine gem tubes; with sliding move-



THE AMERICAN OPTICAL COMPANY'S 8 x 10 COMBINATION MULTIPLYING CAMERA-BOX.

ments, vertical and horizontal; with assorted diaphragms, catches, scales, and so on, simple in their nature, yet working like an automaton, which, combined, make one of the most perfect and desirable of boxes. This box is No. 25, and will make eighteen, thirty-six, or seventy-two gems on a 7x10 plate; nine gems on a 5x7 plate; eight $\frac{1}{4}$ size cards on a 7x10 plate, using two $\frac{1}{4}$ or $\frac{1}{3}$ lenses; eight cards, using one lens for copying, on a 7x10 plate; four small Imperials or four Victoria cards on a 7x10 plate, using a $\frac{3}{4}$ lens; two large $\frac{3}{4}$ size, on a 7x10 plate, using a $\frac{3}{4}$ lens; regular work from $\frac{1}{4}$ to 8x10 inclusive.



When arranged so as to take eight cards with four lenses it requires another diaphragm.

The holders contain two sets of kits for fer-

rotypes and negatives. The latter with glass corners.

The introduction of the beautiful new size called in America "Victoria," in Prussia the "Format," and in Austria the "Elizabeth," made it necessary to bring forward another box still, to accommodate it. It works a 5 x 7 plate, and makes four cartes de visite, using four $\frac{1}{4}$ tubes, on a 5 x 7 plate; and by reversing the four lenses it will make eight "Bon-tons," on a 5 x 7 plate. It also makes all regular sizes, using four $\frac{1}{4}$ tubes, from $\frac{1}{6}$ size to $\frac{1}{4}$. Four $\frac{1}{4}$ lenses only, accompany the box.

The figure on p. 47 represents it. It is a charming piece of apparatus, and works admirably. A novelty we have introduced with it is the catch, which keeps the carriage movement in place when the box is used as a multiplier. It is a great improvement on the old contrivance.

The front block separates according to the size required.

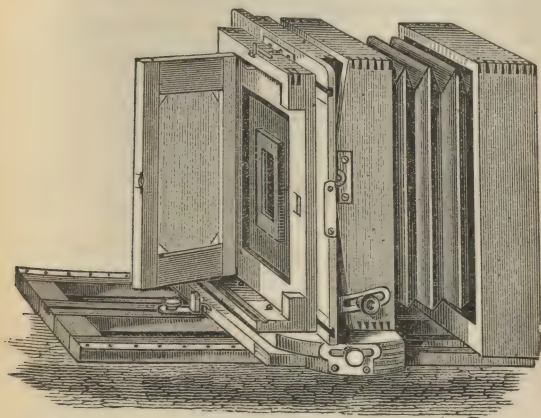
The styles are, viz. :

No. 21.--Victoria Card Box, with four $\frac{1}{4}$ tubes only.

" 21a.—New style, using two $\frac{1}{4}$ size tubes only.

The *Imperial Card or Cabinet* box is one of the most useful and acceptable that has been introduced, and it has probably done more towards the production of the new imperial or cabinet size of *excellent quality* than is generally accredited to it. The reason of this is, that the manu-

facturers have allowed no pains to be spared in their works to make it answer all the requirements that could be made of it *exactly*, and to make it perfect in all its parts. At first sight



we have seen the photographer stand back as if he thought it was complicated, but, as all quickly find out, it is *not* so in the least. On the contrary, its motions are so simple and easy that any one can make it work without trouble.

The drawing we annex shows it well in all its beautiful proportions. It is provided with the India-rubber bellows, the double swingback, the swinging ground-glass, the patent focussing screw, the metal guides on the platform, the silver-saving bottle, and latest and last, the im-

proved solid glass corners. The frame which carries the holder has a horizontal carriage-movement, which, with the internal diaphragms provided, enables the operator to make with this box the following sizes and styles:

Two imperials on an 8 x 10 plate, using a $\frac{1}{4}$ lens; two cards on a $4\frac{1}{4} \times 6\frac{1}{2}$ plate, using a $\frac{1}{2}$ lens; four cards on a $\frac{1}{4}$ plate, using two $\frac{1}{2}$ lenses; regular work $\frac{1}{8}$ to 10 x 12, inclusive.

The imperial card box is made as follows:

- No. 22.— $\frac{1}{4}$ Imperial Card Box, Double Swingback.
 “ 23.—8 x 10 “ “ “ “
 “ 24.—10 x 12 “ “ “ “
 “ 25.—8 x 10 Combination Box, without tubes.

It makes two imperials on a $\frac{1}{4}$ plate, using one $\frac{1}{4}$ lens; two cards on a $4\frac{1}{4} \times 6\frac{1}{2}$ plate, using one $\frac{1}{2}$ size lens; four cards on a $\frac{1}{4}$ plate, using two $\frac{1}{2}$ size lenses; regular work down to $\frac{1}{8}$ inclusive.

The American Optical Company's apparatus is now used in almost every gallery in America. The boxes described are for ferrotypes or photographs.

CHAPTER XIII.

THE SKYLIGHT AND THE DARK-ROOM.

WITHOUT wishing to rob Mr. Elbert Anderson or his most excellent work of any glory, we

must have a few passing words on the subject of "The Skylight and the Dark-room." Such elaborate and plain instructions are given on this subject by Mr. Anderson and other authors that it will not be necessary for us to repeat their instructions here. Neither need we touch upon the æsthetics of the art of ferrotyping. Read carefully the standard works upon these subjects, and they will inform you fully. The same instructions which apply to photography apply to ferrotyping.

A quick light is best for ferrotypes, so that the exposure may not be too long; and a diffused rather than a direct light is preferable.

Many photographers who understand perfectly well how to make good negatives fail in making ferrotypes, simply because they do not understand what a different illumination the two pictures require.

A ferrotype requires double the amount of brilliant light that is used for a good negative; a light that would make a negative to produce soft, brilliant prints, would make a dull smoky ferrotype.

Another very important point in making ferrotypes is the time of exposure, and nothing but experience, and a good deal of it too, can teach that one thing, for it is entirely governed by the strength of light.

When the light is properly arranged we expose the plate eight seconds, but if the day is

cloudy or the light weak more time is required, of course.

It is very necessary, where there is more than one exposure on a plate, to have the time exactly the same, or they will not develop evenly.

Three exposures on one plate have been made with this difference in time : three seconds, twenty seconds, and sixty seconds, and had them all develop evenly, but the light changed very much by heavy clouds passing over the sun.

When pictures are over-exposed, they flash out quickly. If you shorten the development, they will be gray and lack brilliancy.

If undertimed, they are harsh, with strong contrast, the whites very white, and the blacks very black—no middle tints.

When properly exposed, they will be round, full of detail in the hair, drapery, and shadows, and the face will be full of modulation.

It is not possible to tell when the picture is properly exposed, only by watching the development. If the image comes out immediately after the flowing of your developer, and comes up regular, strong, and vigorous, full of detail, then you have your exposure right.

When you are working quickly and exposing six or eight seconds, you will notice one-half a second makes a decided difference in your pictures ; and the operator must time by counting, and he must learn to count seconds exactly ; then he will have no trouble.

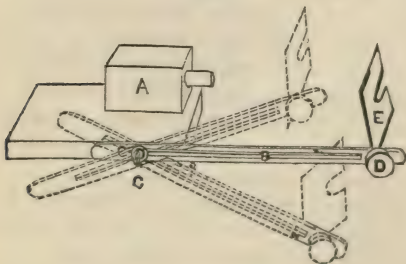
We believe we have now told quite the whole story, but there are two or three other matters which we must speak about before making our adieu.

CHAPTER XIV.

VIGNETTES AND MEDALLIONS.

FERROTYPES may be vignetted in the camera very readily in two or three ways. The little contrivance described below is exceedingly useful for vignetting in the camera. A drawing will make the matter more plainly understood.

A represents the camera-box, moved to one



side of the top of the stand, in order to delineate the other parts more easily. B is a strip of one-

half inch walnut, of any proper length, with a slot in it nearly the whole length. E is a piece of stiff cardboard, cut to the shape in the drawing, and attached to the end of the strip B by the screw-knob D, by means of which it may be turned at any angle desired. The strip B is fastened to one side of the top of the camera-stand by means of another screw-knob at C, on which it is also worked back and forth. It also enables us to control the whole apparatus, and by loosening it we may move it up or down, as shown by the dotted lines. If you wish to prevent an abrupt line, work the card E back and forth gently during exposure, by means of the knob D. It will be found to answer perfectly.

Another plan is one in common use, as follows :

Take a white cardboard, about 18 x 22, cut a half circle in one side of the cardboard, and then cut the circle full of notches like saw-teeth. These teeth should be about one inch to an inch and a quarter long, and should come to a point. When set a proper distance from the model, it will blend off softly and nicely. With this board nailed on a frame with a wooden rod so you can use the stand of a head-rest to place it in, and by moving the vignette-board up or down, you can get it in the proper position, and can make any size you wish (see cut on p. 55). This card must be turned to the instrument, for if the side the frame is exposed on is turned to the instru-

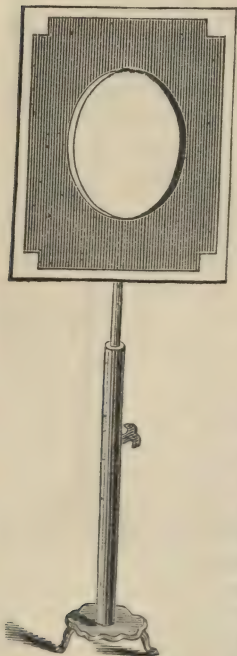
ment, it would show. If the vignettes are made on a white background, and a white vignette-board is used, the cloud and ground will take just the same. Have the vignette-board well lighted, or else it will take darker than the ground. The nearer it is to the instrument, the softer it will blend. A little practice will teach any one how to use it. One can tell how to arrange it by looking in the front of the camera. As you see your figure and vignette-board in the front lens, so it will be in the picture. It is well to vignette nearly all the cabinet size and whole plates. Make the heads quite large, and they give very good satisfaction.

To make medallion ferro-types the following plan was given in the *Philadelphia Photographer* a short time ago. The correspondent who sends it says:

"I send to you a model of what I call a medallion shield, for making medallions in the camera. I have tried it, and it works to perfection. It consists, as you see, of a shape made of a piece of flock background, with a proper oval cut



therein, and one edge of the opening painted black and the other white. It is cut out at the



corners, so as to fit over a wooden frame as described below. Now for the way to use it. The shape is tacked on a light frame being bent over at the lines. Next a rod (either wood or iron) is fastened at one corner (the light will determine which), then remove the head-rod from any head-rest—mine is an old Jenny Lind rest—and insert the wooden rod; as you will see, this can be raised and lowered to suit the height of the sitter. After the sitter is posed, bring up the shield in front (of course the sitter's feet will be turned to one side), or it may be placed directly over the feet, and

place it just as you want it. With a little care it can be made as sharp in the negative as in a medallion print by the old way, and without

interfering with the subject. I am positive it will save one-half of the time to a printer."

Another method is used somewhat. Instead of the piece of background described above a large white cardboard, say 30 x 40 inches, is used with a large oval cut in the centre. This oval must be either 18 x 22 or 20 x 24 inches. A frame is made hinged at the top. The card is nailed over the front frame about the average height for a person sitting in a chair. This is placed in front of the sitter so his head will be in the circle; in fact, the sitter looks as though he was framed; but the position must be got so as to have the head in the circle proper. To get this, the card is raised or lowered. The medallion ferrotype must be made on a dark background. It takes longer to make a picture in this style than to vignette it.

We are quite sure that the reader will be able to take up the instructions we have given, and work out the very best results; and to one and all we give our best wishes for great success.

Scovill Manufacturing Co.,
NEW YORK,

Manufacturers of and Dealers in all classes of

PHOTOGRAPH **AND** **F**ERROTYPE
SUPPLIES.

AMERICAN OPTICAL CO.'S APPARATUS,

• Multiplying and Gem Cameras, the most improved.

THE CELEBRATED UNION GOODS:—

Cases, Frames, Trays, &c., for Ferrotypes.

Brass Mats, and Preservers,
Band and Clasp, and Plain Cases of all sizes and grades.

TRASK'S FERROTYPE COLLODION.

Varnishes, Gun Cotton, Patent Envelopes, Slips,
Tucks, &c., for Ferrotypes, a great variety.

Agents for PHENIX FERROTYPE PLATES,

Chocolate, Black, Eggshell and Glossy.

No. 4 Beekman St., New York.

BLESSING'S
GREAT SOUTHERN DEPOT

FOR
AMERICAN OPTICAL COMPANY'S
APPARATUS.

Photographic Materials,

FERROTYPE PLATES,
CARDS AND ENVELOPES,
CARD STOCK,
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

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"It is one of the most valuable aids to art education which has yet been presented to the photo. portraitist. Each print represents a distinct study of pose and lighting, the widest variety of effects being comprehended. We should be glad to see it in the hands of English portraitists generally."—*Photo. News*.

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"I confess that this work has furnished me much instruction, particularly the manner in which, by word and picture, studies about light and pose, are explained and made comprehensible."—*Dr. Vogel*.

"We do not know of anything ourselves that has been presented to the trade which is calculated to do so much real good as Bigelow's Album, with the explanatory key to the studies. It is an invaluable guide to the portraitist."—*Philadelphia Photographer*.

A large lot sent to England was sold in a week, and more demanded at once. Orders from Germany for a large lot just received. The studies are mounted on folding leaves, so that twelve can be examined at once. Price in cloth, gilt, \$6, post-paid.

F—*Wilson's Landscape Studies*. An album of landscape studies in style similar to Bigelow's Album, containing ten 5 x 8 views, with the formula, &c., by George Washington Wilson, Esq., the renowned Scotch landscape photographer. A splendid work. In cloth, gilt, \$4.

G—*Dr. Vogel's Handbook of the Practice and Art of Photography*. Treats on all matters of photographic practice in every department. Decidedly a most practical and useful photographic work by a popular German author. Full of illustrations, and has four photographs showing the various methods of lighting the face. Edition nearly exhausted. Price, \$3.50, postpaid.

H—*How to Paint Photographs in Water Colors*. A practical Handbook designed especially for the use of students and photographers, containing directions for Brush Work in all descriptions of Photo-Portraiture, Oil, Water Colors, Ink, &c. By GEORGE B. AYRES, Artist. Third Edition. Differing largely from previous editions. Price, \$2.00. The new chapter on *Retouching Negatives*, contributed by the distinguished artist-photographer, Mr. William Kurtz, of New York, is a conspicuous feature of this edition; and is needed by every photographer who desires to accomplish this beautiful process. It is alone worth the price of the book.

The author says: "There is no good reason why every photographer should not become somewhat qualified to do an amount of his ordinary coloring, and by study and practice, a considerable portion." He is right. Try.

I—*Pictorial Effect in Photography*. By H. P. ROBINSON, London. English edition. A splendidly illustrated work, teaching how to pose and light the subject, the rules of composition, &c., &c. Handsomely bound in cloth, \$3.50. No landscape or portrait photographer can read it without improvement.

J—*How to Sit for Your Photograph*. This is a fine little work of 48 pages, written by the wife of a celebrated New York photographer, for the purpose of educating the public on the all-important subject of sitting for a picture, and to assist the photographer in securing the best possible results. Practical, yet spicy and amusing in style. It is bound in cloth at 60 cents per copy, and paper cover, 30 cents, retail. Sample copies sent free of postage to any address on receipt of price.

K—Lookout Landscape Photography. By the late Prof. R. M. LINN, Lookout Mountain, Tenn. A pocket manual for the outdoor worker, and full of good for every photographer. 75 cents. Be sure to get it.

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O—"The Photographer to his Patrons." A splendid little twelve-page leaflet, which answers all vexatious questions put to you by your sitters, and serves as a grand advertising medium. It is for photographers to give away to their customers. Send for a copy and an illustrated circular. Over 500,000 already sold and in use all over the country. \$20.00 for 1000, \$35.00 for 2000, and so on. Printed and supplied in English, German, and Spanish.

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Q—The Year-Book of Photography. By G. WHARTON SIMPSON. English edition. Similar to Mosaics, and FULL of good, short, practical articles. 50 cents. 1869, 1870, 1871, 1872, and 1873 now on hand.

R—Elbert Anderson's Photo-Comic Allmyknack for 1873. Being a complete Almanac, full of witty sayings, jokes, puns, stories, etc., etc. Profusely illustrated with comic and original sketches, yet all interspersed with much practical matter of value to every photographer. Issued May, 1873. Price, 75 cents.

To save writing, photographers may order the above of us by the marginal letters, thus: "Please send us one copy of each, book A, B, K," &c., &c. Any of the above sent post free on receipt of price by

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FERROTYPE PLATES,

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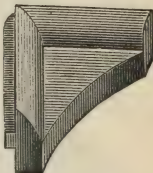
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OR

FERROTYPE BOXES.

STANDARD QUALITY.

The standard Camera Boxes are usually fitted with first-quality composition corners, but as some of our customers have expressed a desire to have glass corners in this quality of boxes, we will fit all of the holders with kits containing Lewis's patent glass corners (see cut) at 10 per cent. advance on the following prices, when so ordered.



GEM BOXES.—Standard quality.

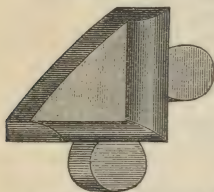
- No. 53.—*New York Gem*, complete with four 1-9 Darlot tubes; will make 4, 8, and 16, on a 1-4 plate, two cards on a 1-2 plate, 1-9 to 1-2 reversible.\$36 00
 Without the four 1-9 tubes..... 23 00
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 Without the four 1-9 tubes.. 15 00
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 Without the six 1-9 tubes..... 18 00
- No. 156.—4-4 Gem Box with twelve Darlot tubes; will make twelve pictures on a 4-4 plate, and 1-6 to 6½ x 8½ reversible..... 67 50
 Without the twelve 1-9 tubes..... 24 50
- No. 157.—4-4 size Gem Box with four 1-4 tubes; will make four pictures on a 6½ x 8½ plate, and regular work 1-6 to 4-4..... 54 50
 Without the four 1-4 tubes..... 24 50

FERROTYPE CAMERA BOXES.

STANDARD QUALITY.

| | |
|---|---------|
| No. 160.—1-4 size box and holders for four pictures on a 1-4 plate..... | \$12 00 |
| The same fitted with four 1-9 Darlot tubes..... | 27 00 |
| No. 161.—1-2 size box and holders for six pictures on a 1-2 plate..... | 13 00 |
| The same fitted with six 1-9 Darlot tubes..... | 36 00 |
| No. 162.—5 x 7 box and holders for nine pictures on a 5 x 7 plate..... | 19 00 |
| With nine 1-9 Darlot tubes..... | 51 00 |
| No. 163.—5 x 7 box and holder for four pictures on a 5 x 7 plate..... | 19 00 |
| With four 1-4 Darlot tubes..... | 45 00 |
| No. 164.—1-4 box and holders for sixteen pictures on a 1-4 plate with tubes complete..... | 48 00 |
| Ten per cent. advance with the old style (Lewis's patent) glass corners in the holders. | |

CAMERA BOXES.—Extra quality.



The following Camera Boxes are manufactured from the best mahogany or black walnut, French polished, with *India rubber bellows*, solid or folding platform, with *patent brass guides*, and *fine focusing screw*, with which the focus is drawn upon the largest boxes with the same facility and accuracy as upon the smaller ones,

and all holders fitted with *the new patent glass corners*, without extra charge. (See cut.)

THE NEW VICTORIA BOXES.

The Victoria Box works a 5 x 7 plate, and may be used to make two Victoria cards, using one tube, on a 5 x 7 plate: four cartes de visite, using four 1-4 tubes, on a 5 x 7 plate: and by reversing the four lenses it will make eight "bon tons," on a 5x7 plate. It also makes all regular sizes, from 1-6 size to 1-4, using four 1-4 tubes.

THE STYLES ARE, VIZ. :

| | |
|---|---------|
| No. 21.—Victoria Card Box with four 1-4 tubes only... | \$63 00 |
| Without tubes..... | 38 00 |
| No. 21a.—New style, with two 1-4 tubes only..... | 51 00 |
| Without tubes..... | 38 00 |

GEM, CARD, AND UNIVERSAL CAMERA BOXES.

| | |
|---|---------|
| No. 8.—Gem, for 12 pictures on a 1-4 plate, using twelve tubes; 1-9 to 1-2 sizes reversible, using one tube; and two cards on a 1-2 plate, using 2 tubes..... | \$28 00 |
| No. 9.—The same fitted with twelve tubes..... | 63 00 |
| No. 10.—The same box fitted with four additional tubes for making four pictures on a 1-4 plate..... | 78 00 |
| No. 11.—For four, eight, twelve, and sixteen, on a 1-4 plate; 1-9 to 1-2 reversible, and two cards on a 1-2 plate..... | 38 00 |
| No. 12.—The above fitted with four Darlot tubes..... | 53 00 |

COMBINATION MULTIPLYING CAMERA BOX.

The Box of all Boxes.—Ne plus ultra.

No. 25.—8 x 10. Prices below. This Box will make

| | |
|----------------------------|----------------------------|
| 72 gems on a 7 x 10 plate. | 18 gems on a 7 x 10 plate. |
| 36 " " 7 x 10 " | 9 " " 5 x 7 " |

Eight 1-4 size cards on a 7 x 10 plate, using two 1-4 or 1-3 lenses.

Eight cards, using one lens for copying, on a 7 x 10 plate.

Four small imperials or four Victoria cards on a 7 x 10 plate, using a 4-4 lens.

Two large 4-4 size, on a 7 x 10 plate, using a 4-4 lens.

Regular work from 1-4 to 8 x 10 inclusive.

When arranged so as to take eight cards with four lenses, it requires another diaphragm.

Holders contain two sets of kits for ferrotypes and negatives. The latter with glass corners.

Unfitted (that is without any tubes).....\$89 50

Fitted with nine 1-9 Darlot tubes.....119 50

" " " and 2½ Darlot tubes.....131 50

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All carriage movements are supplied with the *new patent ivory roller*.

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PHOTOGRAPHERS and FERROTYPERS wanting the best Collodion manufactured, will use nothing but the "UNRIVALED," which is made and sold only at the "GREAT CENTRAL." The "UNRIVALED" NEGATIVE, and REMBRANDT COLLODION is unsurpassed, and I ask only a trial to convince you of its excellence.

FERROTYPERS—use my

UNRIVALED GEM COLLODION,

It will suit you, and once in your "DARK-ROOM" you will buy no other made.

UNRIVALED VIEW COLLODION. UNRIVALED QUICK COLLODION.

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"Great Central."

COLLODION

THE
"Great Central."

VARNISH.

THE
"Great Central."

VARNISH.

CHAS. W. STEVENS' BRILLIANT VARNISH,

For Negatives and Ferrotypes—the best in use.

THE "Great Central." ALBUMEN PAPER. THE "Great Central."

CHAS. W. STEVENS' "Geneva" Albumen, Rives and Saxe, Pink and White; without an equal for brilliant results and ease of working.

PURE LIQUID CHLORIDE OF GOLD, AND C. W. S. GUN COTTON.

Nothing better, and if you use them you will buy no other. PURE CHEMICALS A SPECIALTY with the "GREAT CENTRAL." Full weight guaranteed.

The above Proprietary Goods sold only by

**CHAS. W. STEVENS,
158 STATE ST., CHICAGO.**

See my other advertisements in this book.

CHAS. W. STEVENS,

DEALER IN

PHOTOGRAPHIC MERCHANDISE,
SPECIALTIES AND NOVELTIES,
158 State St., Chicago.

IMPORTER OF

Camera Tubes,

All Camera Tubes warranted.
Send for Descriptive List.

AMERICAN OPTICAL CO.'S

Camera Boxes,

All grades and sizes constantly in stock. Send for descriptive List of Apparatus.

CHAS. W. STEVENS'

NEW

Improved Sliding-Back
AND SIDE-ARM

POSITION CHAIR,

Latest and best Chair introduced. Send for a Descriptive Circular and Prices.

CHAS. W. STEVENS'

BABY CHAIR

Send for Descriptive Circular.

GLASS.

I import the best brands of English and French

NEGATIVE and PICTURE GLASS

And will sell at lowest prices.

I import English Hypo. Soda, and deal in

PURE CHEMICALS,

prepared exclusively for Photographic purposes.

I import the best

Evaporating Dishes,

New lot just in.

OVAL AND SQUARE

BLACK WALNUT

FRAMES.

OVAL AND SQUARE

ROSEWOOD AND GILT

FRAMES.

OVAL AND SQUARE

GOLD GILT

FRAMES.

Everything that a Photographer or Ferrotypist needs can be found in QUANTITY and at LOWEST PRICES, at the "GREAT CENTRAL" CASH PHOTOGRAPHIC WAREHOUSE of

CHAS. W. STEVENS, 158 State St., CHICAGO.

Robinson's Patent Photograph Trimmer.

The usefulness of this little contrivance is as **extensive as it is simple**. It will **trim all photographs with equal facility**, from the little circular print of a quarter of an inch in diameter for the locket, to the full life size.

The accompanying cut represents the instrument in the act of trimming a photograph. It does not cut, but *pinches off* the waste paper, and



leaves the print with a neatly beveled edge which facilitates the adherence of the print to the mount. Try one, and you will discard the knife and punch at once. For examples of work see Dr. Vogel's picture in the January number of the Philadelphia Photographer, and Messrs. Schreiber & Sons' picture in the February issue of the same magazine. Likewise the various proofs in other numbers. Sent by mail, neatly boxed, for \$3.50. Sent to any part of the world on receipt of price. *Oil the wheel bearings with sewing machine oil.*

The difficulty of procuring exactly true guides for cutting out prints has induced the inventor to put up machinery for the production of all styles of them, guaranteed mathematically true, and to be known as

ROBINSON'S IMPROVED GUIDES.

Price 10 cents per inch the long way of the opening. A full stock of regular sizes now on hand. A complete, illustrated catalogue and price-list of these will be issued soon.

Please read the description of the Trimmer on page 346, October number Philadelphia Photographer, 1872.

TESTIMONIALS.

"The Trimmer comes up to all you claim for it. I would not be without it."—T. CUMMINGS, Lancaster.

D. J. RYAN'S
SOUTHERN
PHOTOGRAPHIC
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FERROTYPE
STOCK DEPOT,
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First-Class Stock at Northern Prices!

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OF EVERY DESCRIPTION ARE RE-ESTABLISHED IN

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Photographers in the West are invited to send their orders to this well-known House.

GOODS EXACTLY AS ORDERED,

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ELBERT ANDERSON'S

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It is full of witty stories, say-
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grotesque illustrations, zodiacal
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All the wit and humor which
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thousands are sure to sell, that
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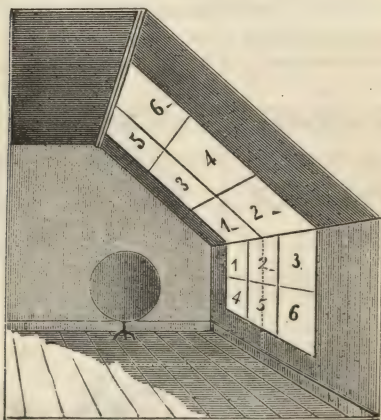
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NEARLY ALL NEW STUDIES.

This album brings lighting and posing down to a system at once plain, easy, and desirable. No good, intelligent operator can afford to work without it.

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24 Victoria Portrait Studies in Light and Pose,

With an EXPLANATORY KEY, telling exactly HOW EACH PICTURE WAS MADE, WHERE THE CAMERA AND SITTER WERE PLACED when it was made, WHAT CURTAINS WERE OPENED in lighting the subject, &c. A diagram of the interior of the skylight (similar to the one on the opposite page) is given in each case (24 in all), telling the whole story. *It is bound handsomely in cloth, gilt.*

TESTIMONIALS.

"It is one of the most valuable aids to art education which has yet been presented to the photo. portraitist. Each print represents a distinct study of pose and lighting, the widest variety of effects being comprehended. We should be glad to see it in the hands of English portraitists generally."—*Photo. News.*

"The method is an admirable one and Mr. Bigelow deserves credit for the systematic way in which he has carried it out."—*British Journal of Photography.*

"I confess that this work has furnished me much instruction, particularly the manner in which, by word and picture, studies about light and pose are explained and made comprehensible."—*Dr. Vogel.*

"We do not know of anything ourselves that has been presented to the trade which is calculated to do so much real good as Bigelow's Album, with the explanatory key to the studies. It is an invaluable guide to the portraitist."—*Philadelphia Photographer.*

It has an astonishing sale in England and Germany, as well as at home, and is really *invaluable*.

A NEW EDITION IS NOW READY,
WITH
NEW KEY! NEW STUDIES!

PRICE, \$6.00.

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Particular attention is given to Special Designs, including monograms and addresses for mounts.

A. M. COLLINS, SON & CO.,

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THE PEERLESS LENSES

ARE QUICK-ACTING,

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ESPECIALLY ADAPTED to FERROTYPING

They are guaranteed to be fully equal to the most expensive foreign lenses. Competition invited.



PRICES.

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| 1-4 size, with central stops..... | \$12 50 |
| 1-2 " " | 20 00 |
| 4-4 " " | 50 00 |
| Extra 4-4 " " | 125 00 |
| 1-2 " " Quick Acting..... | 40 00 |
| 4-4 " " " " | 60 00 |
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These lenses are guaranteed first-class in every respect.

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
Superior to Woolen or Distemper!

Their texture is firm, tough, and elastic, and being painted in oil colors, they do not fade. They are uninjured by water, and can be sponged off with soap suds, like a floor oil cloth or carriage top.

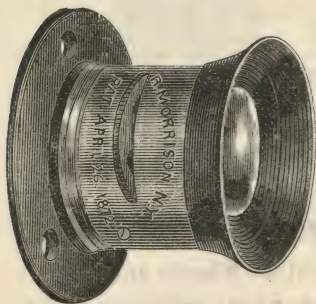
Unlike *Distemper* Grounds, they may be rolled tightly or folded. They are inexpensive, costing much less than *woolen* and no more than distemper. Any desired shade and size can be supplied, and samples may be had on application to your stockdealer.

SQUARE AND REVOLVING
REMBRANDT BACKGROUNDS,
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IMITATION SILK CURTAINS,

ALL DONE IN OIL.

 To be had of all Dealers in Photographic Stock.

MORRISON'S WIDE-ANGLE VIEW LENS.



Patented April 26, 1872,
and May 21, 1872.

These Lenses are constructed on scientific principles; they embrace an angle of fully 90 degrees, and are absolutely free from distortion and flare.

| No. | Size View. | Focal Length. | Price. |
|-----|------------|---------------|----------------|
| 1 | 3 x 3 | 2½ in. | \$40 per pair. |
| 2 | 3½ x 5 | 3 " | 40 " |
| 3 | 4 x 5½ | 4 " | 40 " |
| 4 | 4¼ x 6¼ | 4½ " | 40 " |
| 5 | 5 x 8 | 5 " | 40 " |
| 6 | 6½ x 8½ | 6 " | 25 each. |
| 7 | 8 x 10 | 8 " | 40 " |
| 8 | 11 x 14 | 10 " | 60 " |
| 9 | 14 x 17 | 13½ " | 70 " |
| 10 | 17 x 20 | 15½ " | 100 " |
| 11 | 24 x 30 | 18 " | 150 " |

REMARKS.

Nos. 1 to 5 are all made in matched pairs for stereoscopic work. The shortest focussed Lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 Lenses will be found most useful. Equipped with these, and a New Philadelphia Box, the photographer will be prepared for stereoscopic or the popular 5x8 views.

MORRISON'S LENSES AHEAD.

UNCLE SAM PREFERS THEM. READ!

ENGINEER'S DEPARTMENT, Washington, D. C., Feb. 12th, 1873.

SCOVILL MANUFACTURING CO.

It gives me real pleasure to attest to the great value of the Morrison's Wide-Angle Lens, a pair of which were purchased in July last for the Wheeler Exploring Expedition in Utah and Arizona. After having used said Lenses in the canyons near the Colorado river, and photographing their walls from 1500 to 2000 feet high the results show how perfectly the Lenses did their work. They equal the most costly and excel most of the lenses heretofore used by me.

WILLIAM BELL,

Photographer, Wheeler Exploring Expedition.

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A complete and fascinating work by one who is the highest authority on this subject.

Phenix Ferrottype Plates.

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Hyatt's Ferrottype Varnish.

Flesh Tint Varnish.

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DOUBLE BACK CHAIR,

THE BEST POSING APPARATUS EVER MADE.

Price, in Green Rep, \$25.00; in Brown Velvet, \$28.00.

SLIDING BACK CHAIR,

WITH WIDE BACK AND HEAVY BULLION FRINGE.

Price, 6 inch Fringe, \$12.00; 8 inch Fringe, \$14.00.

Photographic Table, Price, \$16.00.

Scenery Backgrounds.

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Bigelow's Plain Oil Painted Backgrounds.

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292, 294, and 296 MAIN STREET.



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DEALERS IN EVERY VARIETY OF

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PHOTOGRAPHIC MATERIALS,

AND THE MOST DESIRED STYLES OF

OVAL AND SQUARE FRAMES,

Also, Gilt, Black Walnut, and Rosewood and Gilt Mouldings.

CAMERAS AND APPARATUS,

IN GREAT VARIETY.

All Goods sold at lowest Market Prices.

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THEY ARE GOING RAPIDLY. SECURE SOME.

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THREE DOLLARS A VOLUME!

They contain many of the best home and foreign contributions to photographic literature ever published. Among which are a series of papers on

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Both of which are beautifully illustrated, and alone worth more than the cost of the volumes.

The 24 pictures in the two volumes are varied in style, very beautiful, and alone worth six dollars.

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THE CHICAGO SQUARE-DEALING
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SEND US A TRIAL ORDER.

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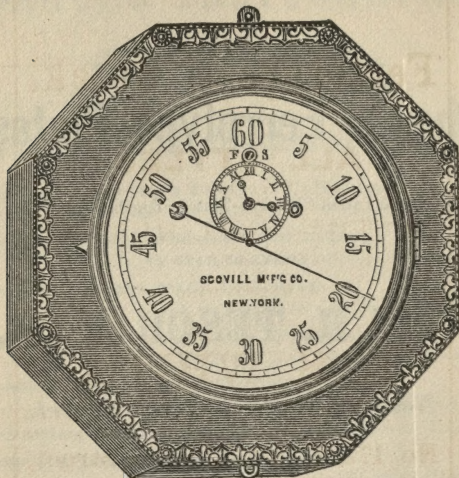
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
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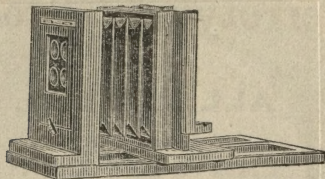
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